(N) L 11776-66 EWT(1)/FS(v)-3 SCTB DD

ACC NR: AP6002697 SOURCE CODE: UR/0391/66/000/001/0021/0025

AUTHOR: Mel'kumova, A. S. (Moscow); Pushkina, N. N. (Moscow)

ORG: Institute of Hygiene im. F. F. Erisman (Institut gigiyeny)

TITLE: Clinical and biochemical data concerning the effect of whole-body and local high-frequency vibration on the metabolism of some vitamins

SOURCE: Gigiyena truda i professional'nyye zabolevaniya, no. 1, 1966, 21-25

TOPIC TAGS: vibration, vibration effect, biologic metabolism, human physiology

ABSTRACT: The authors studied the vitamin metabolism (vitamins C, B_1, B_2, PP, and provitamin A) of 684 workers exposed to industrial vibration in reinforced-concrete component-casting plants. Of this number, 634 were exposed to whole-body vibration (50—100 cps, 0.05—1.3 mm amplitude), and 50 were exposed to noise associated with the vibration (103—108 db). Vitamin metabolisms were monitored by means of blood tests and urine samples, and nutritional data were collected for all subjects. In the first series of tests, which began in 1957, the blood vitamin C content was analyzed in 407 subjects exposed to vibration and 20 control subjects exposed to noise only. The results of this series are found in Table 1. In the second series,

Card 1/4 UDC: 612.015.6.014.45+613.644:612.015.6

Table 1. Blood vitamin C content

Work group		Number of subjects	Blood vitamin C content (mg%)	
			$M \pm m$	t_p
Cement workers exposed to vibration	Healthy subjects	240	0.51 ± 0.009	0.74 0.05
	Previbration-sickness group	27	0.40 ± 0.022	4.2 0.001
	Patients with the 1st stage of cerebral vibration sickness	140	0.27 ± 0.008	19.0 0.001
Subjects exposed to noise	Control	20	0.50 ± 0.01	—
	Total	427	—	—

clinical changes and biochemical variations in the blood vitamin C, B_1, and pyruvic acid content of patients with cerebral and peripheral forms of vibration sickness were surveyed between 1959 and 1963. The results are shown in Table 2.

Table 2. Blood vitamin C, B_1, and pyruvic acid content

Type of vibration	Condition of subjects		Vitamin C (mg%)		Vitamin B_1 (mg%)		Pyruvic acid	
			$M \pm m$	t_p	$M \pm m$	t_p	$M \pm m$	t_p
High-frequency vertical and local leg vibration	Stable, residual cerebral form of vibration sickness	33	0.16 ± 0.01	9.2 <0.001	11.6 ± 0.38	7.4 <0.001	1.27 ± 0.04	5.0 <0.001
Medium- and high-frequency hand vibration	I—II and II stages of hand polyneuritis	13	0.39 ± 0.09	1.5 >0.05	16.1 ± 0.12	3.8 <0.001	1.14 ± 0.05	2.0 >0.05
Control	Healthy	20	0.54 ± 0.04		20.3 ± 1.10		1.02 ± 0.03	

L 11776-66

ACC NR: AP6002697

In the third series, it was statistically demonstrated that the vitamin level (C, B_1, B_2, and PP) was lowered in workers exposed to varying intensities of vibration compared to those exposed only to noise. Vitamin deficits were most noticeable in those subjects stricken with vibration sickness. These tests indicate that personnel exposed to vibration have increased vitamin requirements, and the authors suggest that prophylactic vitaminizing be instituted in situations involving the exposure of workers to vibration. Orig. art. has: 2 tables. [CD]

SUB CODE: 06/ SUBM DATE: 06Jan64/ ORIG REF: 016/ OTH REF: 005/
ATD PRESS: 4178

HW

Card 4/4

ACC NR: AP601[illegible] [illegible]/0240/66/000/004/0103/0105

AUTHOR: Pushkina, [illegible] [illegible]ntseva, A. M.

ORG: Moscow Scientif[illegible] [illegible]iene im. F. F. Erlsman (Moskovskiy nauchno-issledovatel'skiy [illegible]

TITLE: Experimental [illegible] [illegible]neral vibration on the vitamin supply of the body

SOURCE: Gigiyena i [illegible] [illegible]-105

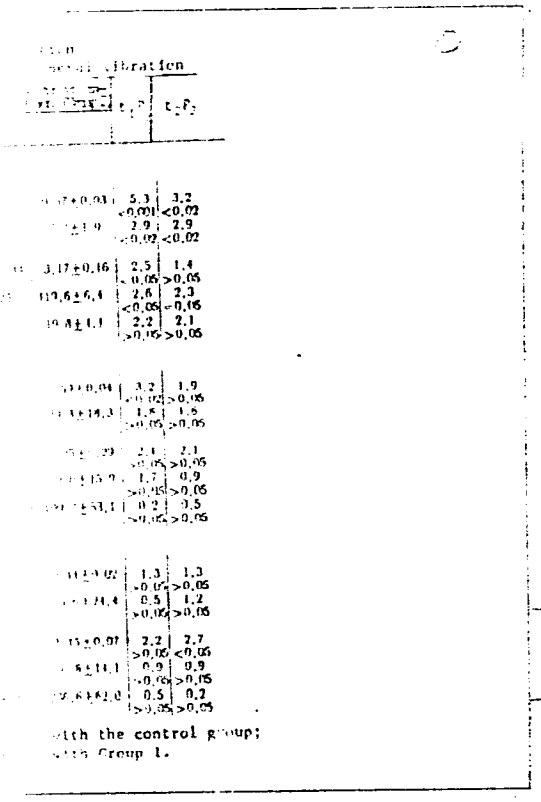
TOPIC TAGS: vitamin, [illegible] biologic vibration effect, dog, rabbit, medical experiment, [illegible]

ABSTRACT: The [illegible] [illegible]ter that there is a reduced concentration of vitamins [illegible] exposed to total body vibration while working in reinforced [illegible] to confirm the results of the earlier work and [illegible] nic evaluation of total body vibration the authors performed [illegible] bits and dogs. Vibration with the following parameters [illegible] 20 cps with amplitudes of 50, 200, and 400 microns; [illegible] and 750 microns; and 75 cps and 15, 20, and 200 [illegible] subjected to vibration for 4 hr daily for 30—60 [illegible] biochemical indices were studied.

Card 1/3 UDC: 612.015.7.014.45-08

L 39523-66

ACC NR: AP6012861



Card 2/3

ACC NR: AP6012662

The vitamin supply was determined from the content of ascorbic acid in the blood and the excretion of vitamins in the urine. The results of three series of experiments in which rabbits were exposed to vibration of various frequencies for 4 hr daily for 30 days are given in Table 1. The table shows that there is a direct relationship between the vitamin supply in the body and the vibration parameters. Tests with 6 dogs produced similar results. The observed changes in vitamin metabolism accompanying exposure to total body vibration indicate disruption of the metabolism of ascorbic acid, thiamine, riboflavin, and N'-MNA. Orig. art. has: 2 tables. [08]

SUB CODE: 06/ SUBM DATE: 19Feb65/ ORIG REF: 006/ OTH REF: 003/ ATD PRESS: 5705

Card 3/3 vmb

PUSHKINA, Nataliya Nikolayevna; PAVLOVA, I.V., red.; LYUDKOVSKAYA, N.I., tekhn.red.

[Biochemical methods of research; manual for physicians-hygienists and occupational disease specialists] Biokhimicheskie metody issledovaniia; rukovodstvo dlia vracheigigienistov i profpatalogov. Moskva, Medgiz, 1963. 393 p. (MIRA 17:1)

24(7), 8(3) SOV/51-6-6-5/34

AUTHORS: Bulanin, M.O., Denisov, G.S. and Pushkina, R.A.

TITLE: Spectroscopic Investigation of the Hydrogen Bond in Mercaptans (Spektroskopicheskoye issledovaniye vodorodnoy svyazi v merkaptanakh)

PERIODICAL: Optika i spektroskopiya, 1959, Vol 6, Nr 6, pp 754-759 (USSR)

ABSTRACT: The authors used infrared absorption spectra to study hydrogen bonds in aliphatic mercaptans (thio-alcohols) and hydrogen bonds formed between thio-hydrile groups of mercaptans with molecules of solvents. The infrared spectra of mercaptansand their solutions were recorded by means of a Perkin-Elmer spectrometer 12B with an LiF prism, an FEOU-18 amplifier and an EPP-09 potentiometer used as a recorder. The integral absorption coefficient K was deduced from the area of the band due to valence vibrations of the SH group. The infrared absorption spectra were recorded in the region 2400-2700 cm^{-1} for liquid ethyl mercaptan (C_2H_5SH) and normal propyl mercaptan (n-C_3H_7SH) and their solutions in CCl_4. Table 1 shows the frequencies of the SH vibrations and the corresponding integral absorption coefficients K at various concentrations of CCl_4 solutions of both mercaptans. Fig 1 gives the absorption curves obtained for solutions of propyl mercaptan in CCl_4. The band due to valence vibrations of the SH group has a half-width of about 58 cm^{-1} in

Card 1/3

Spectroscopic Investigation of the Hydrogen Bond in Mercaptans

the spectra of pure mercaptans. In dilute CCl_4 solutions this band is displaced towards higher frequencies by about 20 cm^{-1} and its half-width decreases to 25 cm^{-1} while its integral intensity falls by a factor of 7-8. In solutions with medium concentration splitting of this band is observed (Fig 1). All these facts indicate that a hydrogen bond of the S--H...S type exists in liquid mercaptan and this bond leads to association of molecules. Association between mercaptan molecules should be accompanied by appearance of SH groups with the following bonds

$$\text{--S--H...S and H...S--H}$$
$$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\quad |$$

Existence of such bonds was confirmed by spectral studies of C_3H_7SH dissolved in $CHCl_3$ and $(C_3H_7)_2S$ (Table 2, Fig 2). Studies of the infrared spectra of C_3H_7SH dissolved in acetone (Fig 3, curve 1), dioxane (curve 2) and triethylamine (curve 3) showed that in acid solutions only a small decrease of the SH-band frequency occurs and the intensity of this band rises strongly. On the other hand dissolution of C_3H_7SH in triethylamine produces a considerable displacement, decrease of intensity and flattening of the SH-band. In a note added at proof-reading

Spectroscopic Investigation of the Hydrogen Bond in Mercaptans

stage the authors mention R.A. Spurr and H.F. Byers's work (J. Phys. Chem., Vol 62, 425, 1958) who confirmed the existence of the S--H...S bond in aliphatic mercaptans. Acknowledgment is made to V.M. Chulanovskiy for his advice. There are 3 figures, 2 tables and 23 references, 14 of which are English, 4 Soviet, 3 French and 2 German.

SUBMITTED: July 15, 1958

Card 3/3

L 46821-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c)
ACC NR: AT6024979 (N) SOURCE CODE: UR/0000/65/000/000/0415/0420

59
57
B+1

AUTHOR: Pushkina, S. V.; Romanov, V. V.

ORG: none

TITLE: Influence of stresses and temperature on the polarization effect associated with the corrosion fatigue of MA-2 magnesium alloy in chloride-chromate solution

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Zashchitnyye metallicheskiye i oksidnyye pokrytiya, korroziya metallov i issledovaniya v oblasti elektrokhimii (Protective metallic and oxide coatings, corrosion of metals, and studies in electrochemistry). Moscow, Nauka, 1965, 415-420

TOPIC TAGS: magnesium alloy, stress corrosion, electric polarization, metallography, fatigue strength, MA-2 alloy

ABSTRACT: A study of the influence of cyclic stresses on the polarization effect associated with the corrosion-fatigue failure of MA-2 magnesium alloy (3.65% Al, 0.85% Zn, 0.50% Mn) in a solution containing 35 g/l NaCl + 20 g/l K_2CrO_4 at 25° showed that as the stress level decreases, the effectiveness of the polarization increases. Under the same conditions, with σ_{-1} = 21.4 kg/cm^2, the effectiveness of the polarization increases as the temperature is lowered from 25 to 5° and raised to 35°. Metallographic studies showed that both in the case of fatigue of MA-2 alloy in air and in the case of its corrosion fatigue in the NaCl-K_2CrO_4 solution, the failure is of composite, primarily intracrystalline character. Cathodic polarization shifts the corrosion-fatigue

Card 1/2

ACC NR: AT6024979

crack from the center of the grains toward the grain boundaries. Anodic polarization makes the failure purely intracrystalline in character. The nature and mechanism of the corrosion-fatigue failure of MA-2 alloy were similar under the selected conditions and during stress-corrosion cracking. In the presence of anodic polarization (contact of the part with a more noble metal), a drop of the cyclic stress level does not increase the corrosion-fatigue strength of the metal. Orig. art. has: 5 figures and 1 table.

SUB CODE: 11/ SUBM DATE: 20Feb64/ ORIG REF: 010/ OTH REF: 002

Card 2/2 b15

L 46835-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD/GD/JH

ACC NR: AT6024980 (N) SOURCE CODE: UR/0000/65/000/000/0421/0424

43
B+1

AUTHOR: Pushkina, S. V.; Romanov, V. V.

ORG: none

TITLE: Influence of stresses and temperature on the polarization effect associated with the corrosion fatigue of V-95 alloy in a solution of 0.05 N H_2SO_4 + 35 g/l NaCl

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Zashchitnyye metallicheskiye i oksidnyye pokrytiya, korroziya metallov i issledovaniya v oblasti elektrokhimii (Protective metallic and oxide coatings, corrosion of metals, and studies in electrochemistry). Moscow, Nauka, 1965, 421-424

TOPIC TAGS: electric polarization, stress corrosion, aluminum alloy / V-95 alloy

ABSTRACT: The corrosion behavior of V-95 aluminum alloy subjected to symmetrical bending at 500 cycles per minute was studied in a solution of 0.05 N H_2SO_4 + 35 g/l NaCl to determine the influence of these stresses on the polarization effect involved in the corrosion fatigue of the alloy. It was found that as the stress level is lowered, the effectiveness of the cathodic and anodic polarization increases. As the temperature rises from 25 to 55° at σ_{-1} = 32 kg/mm^2, the effectiveness of cathodic polarization increases, and that of anodic polarization decreases somewhat. The failure of the alloy under the selected conditions has a composite, primarily intracrystalline character. The results prove the existence of a substantial influence of secondary

Card 1/2

L 46835-66 0
ACC NR: AT6024980

processes occurring at the electrodes on the polarization effect in corrosion fatigue. Orig. art. has: 2 figures.

SUB CODE: 11/ SUBM DATE: 21Dec64/ ORIG REF: 007

Card 2/2 blg

L 46839-66 EWT(m)/EWP(w)/EWP(j)/T/EWP(t)/ETI IJP(c) JD/WB/GD/RM/JH

ACC NR: AT6024981 (N) SOURCE CODE: UR/0000/65/000/000/0425/0429

48
B+1

AUTHOR: Pushkina, S. V.; Balezin, S. A.; Romanov, V. V.

ORG: none

TITLE: Effect of corrosion inhibitors on the corrosion fatigue of MA-2 alloy

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Zashchitnyye metallicheskiye i oksidnyye pokrytiya, korroziya metallov i issledovaniya v oblasti elektrokhimii (Protective metallic and oxide coatings, corrosion of metals, and studies in electrochemistry). Moscow, Nauka, 1965, 425-429

TOPIC TAGS: corrosion inhibitor, corrosion protection, magnesium alloy, cathode polarization, cyclic strength/MA-2 alloy

ABSTRACT: The object of the work was to determine the influence of an inorganic and organic inhibitor on the corrosion fatigue of MA-2 magnesium alloy (in %: Al 3.65, Zn 0.85, Mn 0.5, bal. Mg) in a chloride-chromate solution (35 g/l NaCl + 20 g/l K_2CrO_4) at 25°C; to study the combined effect of cathodic polarization and corrosion inhibitors on this process; and to clarify the influence of corrosion inhibitors on the cathodic polarization effect involved in the corrosion-fatigue failure of MA-2 alloy in the selected corrosive medium. The specimens were subjected to symmetrical bending at 500 cycles per minute. It was found that sodium nitrite and benzoate effectively increase the resistance of MA-2 to corrosion-fatigue failure. This pro-

Card 1/2

L 46838-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD/WB/JH

ACC NR: AT6024982 (N) SOURCE CODE: UR/0000/65/000/000/0429/0434

AUTHOR: Pushkina, S. V.; Romanov, V. V. 53

ORG: none B+1

TITLE: Influence of the corrosive medium on the polarization effect associated with the corrosion fatigue of V-95 alloy

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Zashchitnyye metallicheskiye i oksidnyye pokrytiya, korroziya metallov i issledovaniya v oblasti elektrokhimii (Protective metallic and oxide coatings, corrosion of metals, and studies in electrochemistry). Moscow, Nauka, 1965, 429-234

TOPIC TAGS: aluminum alloy, electric polarization, corrosion, V-95 alloy

ABSTRACT: The influence of sulfuric acid concentration in a system of NaCl + H_2SO_4 solutions on the polarization effect associated with the corrosion fatigue of V-95 aluminum alloy (in %: Zn 5.35, Mg 2.30, Cu 1.30, Mn 0.33, Cr 0.13, bal. Al) was investigated at two stress levels (symmetrical bending at 500 cycles per minute): (1) above the vibration strength in air (σ_{-1} = 32 kg/mm^2) and (2) close to it (σ_{-1} = 16 kg/mm^2). It was found that as the H_2SO_4 concentration increases at both stress levels, the effectiveness of cathodic and anodic polarization decreases. This decrease and that of the time to failure of the specimens with increasing H_2SO_4 concentration in NaCl solution in the absence of polarization are attributed to an increased effectiveness of

Card 1/2

SKRYABIN, K., akademik, Geroy Sotsialisticheskogo Truda, laureat Leninskoy premii; SAMSONOV, B.; PUSHKINA, Ye., vrach (selo Larga, Moldavskaya SSR); KCHACHATURYAN, A., kompozitor, narodnyy artist SSSR, laureat Leninskoy premii; RUDENKO, A., gornyy master; TERESHENKOV, Ye.; ABDRAZAKOV, T., kand. ekon. nauk

Our interviews. Sov. profsoiuzy 18 no.13:7-9 Jl '62. (MIRA 15:6)

1. Model'shchik Lyuberetskogo zavoda sel'skokhozyaystvennykh mashin (for Samsonov). 2. Shakhta No.5 tresta "Vorkutaugol'" (for Rudenko). 3. Zaveduyushchiy kafedry politekonomii Karagandinskogo pedagogicheskogo instituta (for Abdrazakov).
(Disarmament) (Peace)

PUSHKINA, Z.V.

Interstitial waters of clay rocks and alterations along the cross section. Trudy GIN no.115:160-203 '65.
(MIRA 18:12)

PUSHKINA, Z.V.

Chlorine content and salinity of interstitial water in Quaternary and Upper Pliocene deposits of the southern Caspian. Dokl. AN SSSR 148 no.2:433-436 Ja '63. (MIRA 16:2)

1. Geologicheskiy institut AN SSSR. Predstavleno akademikom N.M. Strakhovym.
(Caspian Sea--Salinity)

PUSHKINA, Z.V.

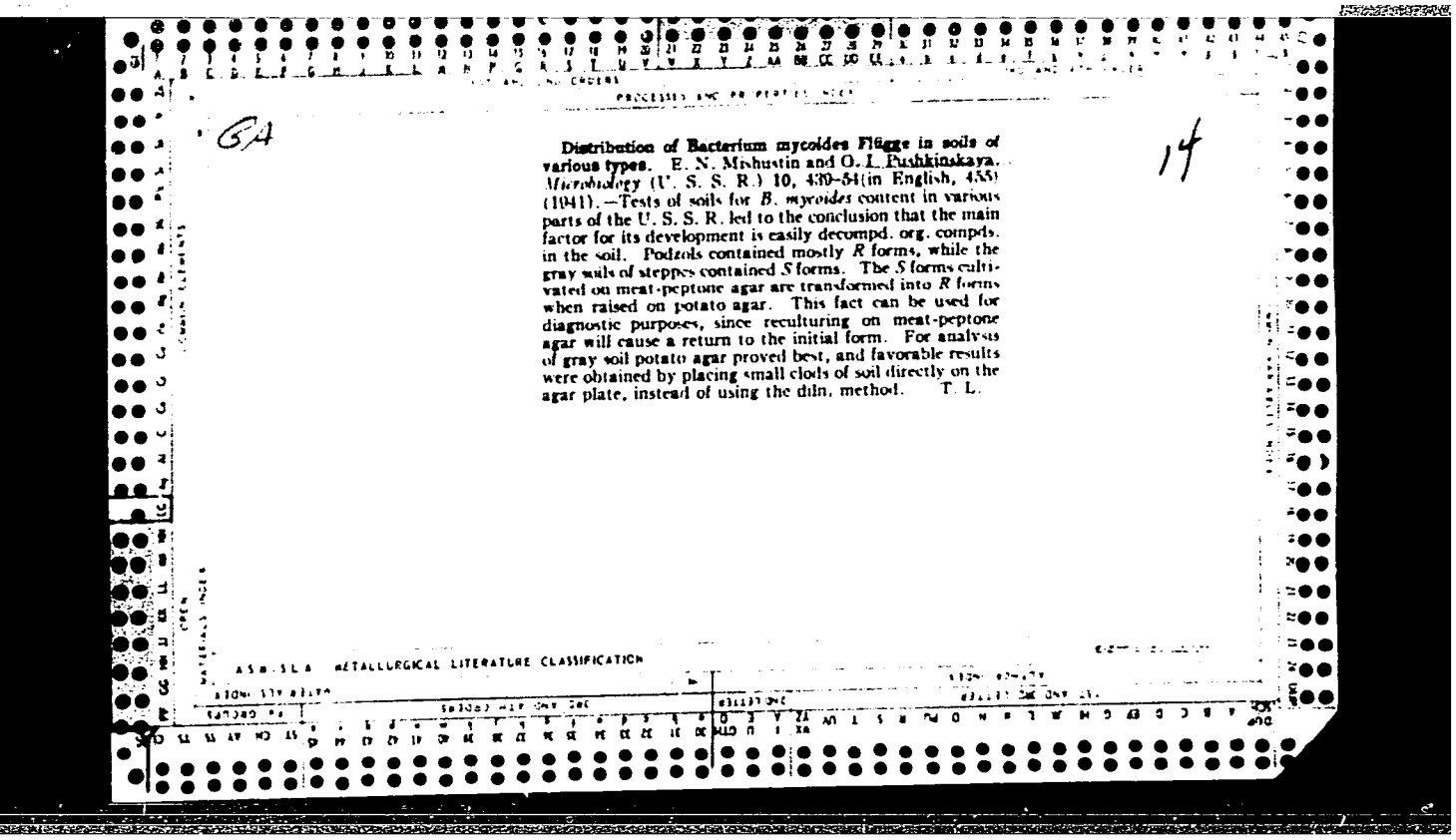
Interstitial waters of recent Quaternary and Pliocene sediments in the Southern Caspian. Lit. i pol. iskop. no.3:3-18 '63.
(MIRA 17:1)

1. Geologicheskiy institut AN SSSR, Moskva.

PUSHKINA, Z.V.

On the geochemistry of interstitial waters of the Quaternary and Pliocene deposits of the southern Caspian. Dokl.AN SSSR 148 no.4:921-924 F '63. (MIRA 16:4)

1. Geologicheskiy institut AN SSSR. Predstavleno akademikom N.M.Strakhovym.
(Geochemistry) (Caspian Sea--Water, Underground)

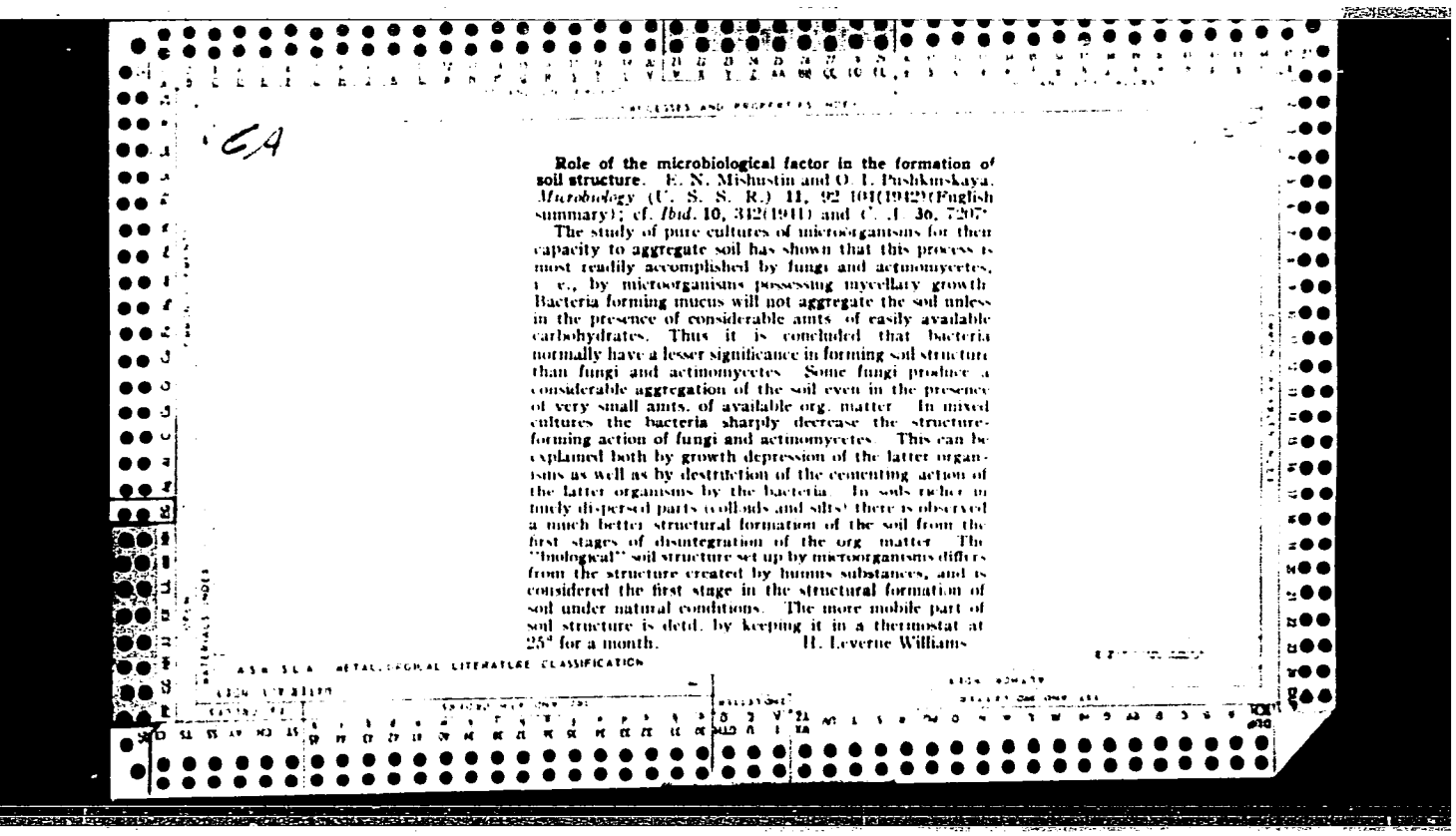


G4

14

Distribution of Bacterium mycoides Flügge in soils of various types. E. N. Mishustin and O. L. Pushkinskaya. *Microbiology* (U. S. S. R.) 10, 439–54 (in English, 455) (1941).—Tests of soils for *B. mycoides* content in various parts of the U. S. S. R. led to the conclusion that the main factor for its development is easily decompd. org. compds. in the soil. Podzols contained mostly *R* forms, while the gray soils of steppes contained *S* forms. The *S* forms cultivated on meat-peptone agar are transformed into *R* forms when raised on potato agar. This fact can be used for diagnostic purposes, since reculturing on meat-peptone agar will cause a return to the initial form. For analysis of gray soil potato agar proved best, and favorable results were obtained by placing small clods of soil directly on the agar plate, instead of using the diln. method. T. L.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



64

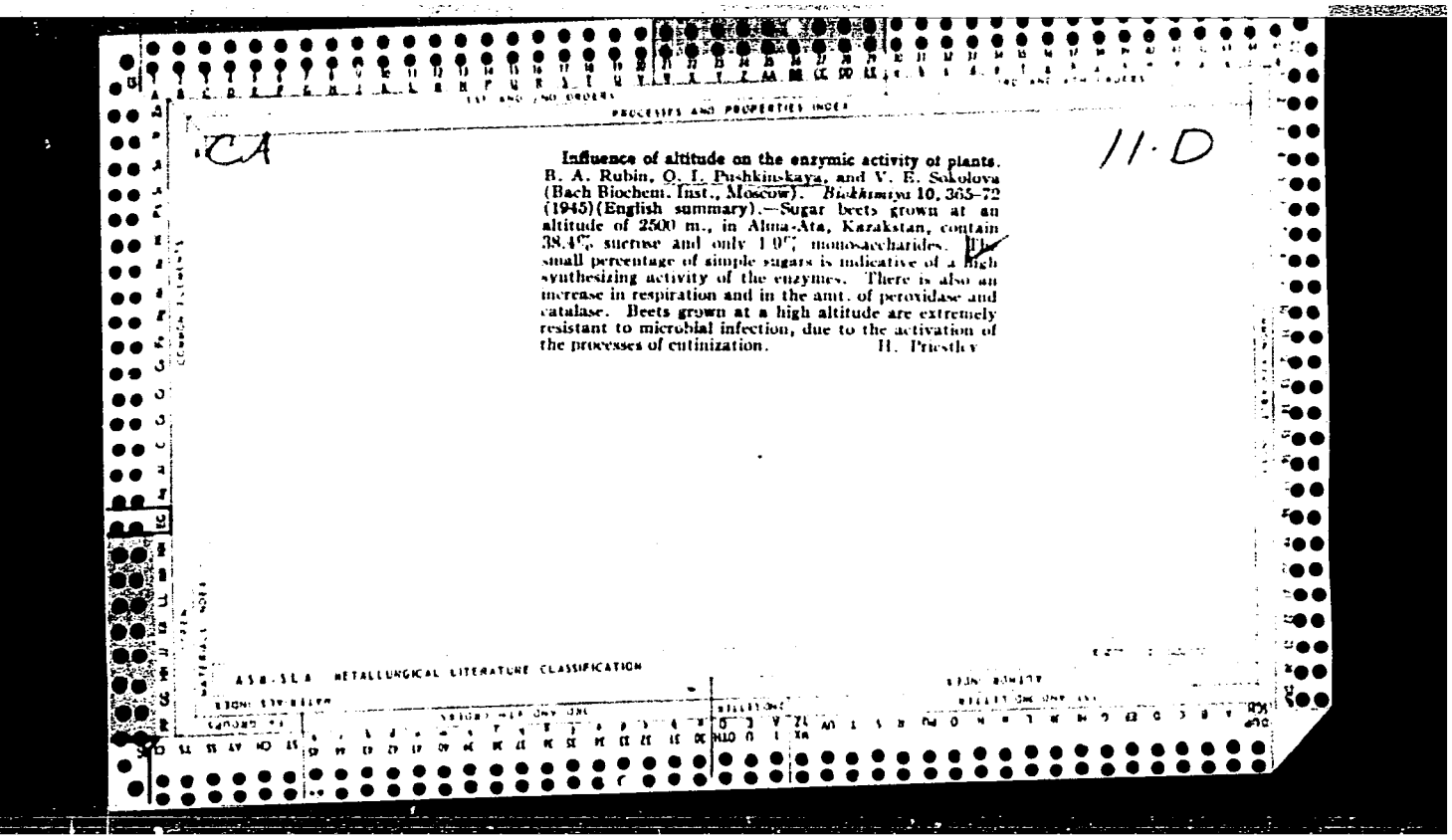
Role of the microbiological factor in the formation of soil structure. E. N. Mishustin and O. I. Pushkinskaya. *Microbiology* (U. S. S. R.) **11**, 92-101(1942)(English summary); cf. *Ibid.* **10**, 312(1941) and C. A. **36**, 7207.

The study of pure cultures of microorganisms for their capacity to aggregate soil has shown that this process is most readily accomplished by fungi and actinomycetes, i. e., by microorganisms possessing mycellary growth. Bacteria forming mucus will not aggregate the soil unless in the presence of considerable amts. of easily available carbohydrates. Thus it is concluded that bacteria normally have a lesser significance in forming soil structure than fungi and actinomycetes. Some fungi produce a considerable aggregation of the soil even in the presence of very small amts. of available org. matter. In mixed cultures the bacteria sharply decrease the structure-forming action of fungi and actinomycetes. This can be explained both by growth depression of the latter organisms as well as by destruction of the cementing action of the latter organisms by the bacteria. In soils richer in finely dispersed parts (colloids and silts) there is observed a much better structural formation of the soil from the first stages of disintegration of the org. matter. The "biological" soil structure set up by microorganisms differs from the structure created by humus substances, and is considered the first stage in the structural formation of soil under natural conditions. The more mobile part of soil structure is detd. by keeping it in a thermostat at 25° for a month. H. Leverne Williams

PUSHKINSKAYA, O. I.

Mbr., Inst. Biochemistry im. A. n. Bak, Dept. Biol. Sci, -1943-45-.

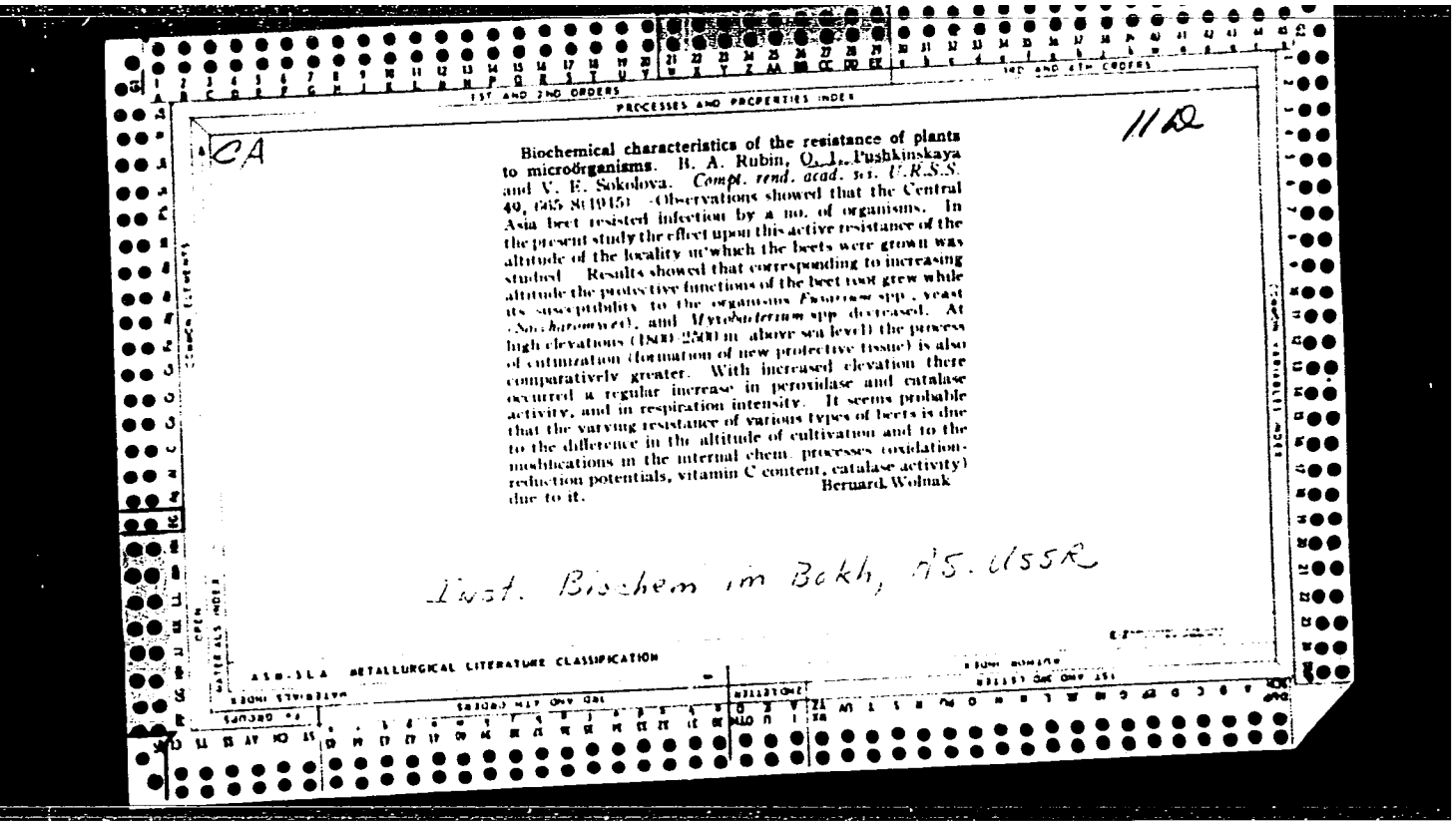
"Microbe Complex Responsible for Rot of Sugar-Beet Stored under Conditions of Kirghizia," Dok. AN, 40, No. 9, 1943.



CA

11-D

Influence of altitude on the enzymic activity of plants. B. A. Rubin, O. I. Pushkinskaya, and V. E. Sokolova (Bach Biochem. Inst., Moscow). *Biokhimiya* 10, 365–72 (1945)(English summary).—Sugar beets grown at an altitude of 2500 m., in Alma-Ata, Kazakstan, contain 38.4% sucrose and only 1.0% monosaccharides. The small percentage of simple sugars is indicative of a high synthesizing activity of the enzymes. There is also an increase in respiration and in the amt. of peroxidase and catalase. Beets grown at a high altitude are extremely resistant to microbial infection, due to the activation of the processes of cutinization. H. Priesthy



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

1102

Biochemical characteristics of the resistance of plants to microorganisms. B. A. Rubin, O. I. Pushkinskaya and V. E. Sokolova. *Compt. rend. acad. sci. U.R.S.S.* 49, 685-8(1945). Observations showed that the Central Asia beet resisted infection by a no. of organisms. In the present study the effect upon this active resistance of the altitude of the locality in which the beets were grown was studied. Results showed that corresponding to increasing altitude the protective functions of the beet root grew while its susceptibility to the organisms *Fusarium* spp., yeast (*Saccharomyces*), and *Mycobacterium* spp. decreased. At high elevations (1500–2500 m. above sea level) the process of cutinization (formation of new protective tissue) is also comparatively greater. With increased elevation there occurred a regular increase in peroxidase and catalase activity, and in respiration intensity. It seems probable that the varying resistance of various types of beets is due to the difference in the altitude of cultivation and to the modifications in the internal chem. processes (oxidation-reduction potentials, vitamin C content, catalase activity) due to it.

Bernard Wolnak

Inst. Biochem. im Bakh, Ac. Sci. USSR

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

11C

Mycorrhiza on woody plants and its significance in protective reforestation. E. N. Mishustin and O. I. Pushkinskaya (Acad. Sci., Moscow). *Mikrobiologiya* 18, 447-67(1949).—A study of organisms forming useful symbiotic growths on tree roots, their relations to carbohydrate absorption and other aspects of tree nutrition, and their utility in promoting growth of forest seedlings. 75 references. Julian F. Smith

1. PUSHKINSKAYA, O. I.

2. USSR (600)

7. "Data for Characterization of the Microflora of the Soils of Tellermanovskiy Experimental Forestry Oak Forests", Trudy In-ta Lesa AN SSSR (Works of the Forest Institute, Acad Sci USSR), Vol 7, 1951, pp 158-179.

9. Mikrobiologiya, Vol XXI, Issue 1, Moscow, Jan-Feb 1952 pp 121-132, Unclassified.

PUSHKINSKAYA, O.

USSR 600

Soils - Bacteriology

Conference on soil microbiology. Mikrobiologiia 21, no. 3, 1952.

Monthly List of Russian Accessions, Library of Congress, September 1952. UNCLASSIFIED.

PUSHKINSKAYA, Olga Ivanovna

USSR

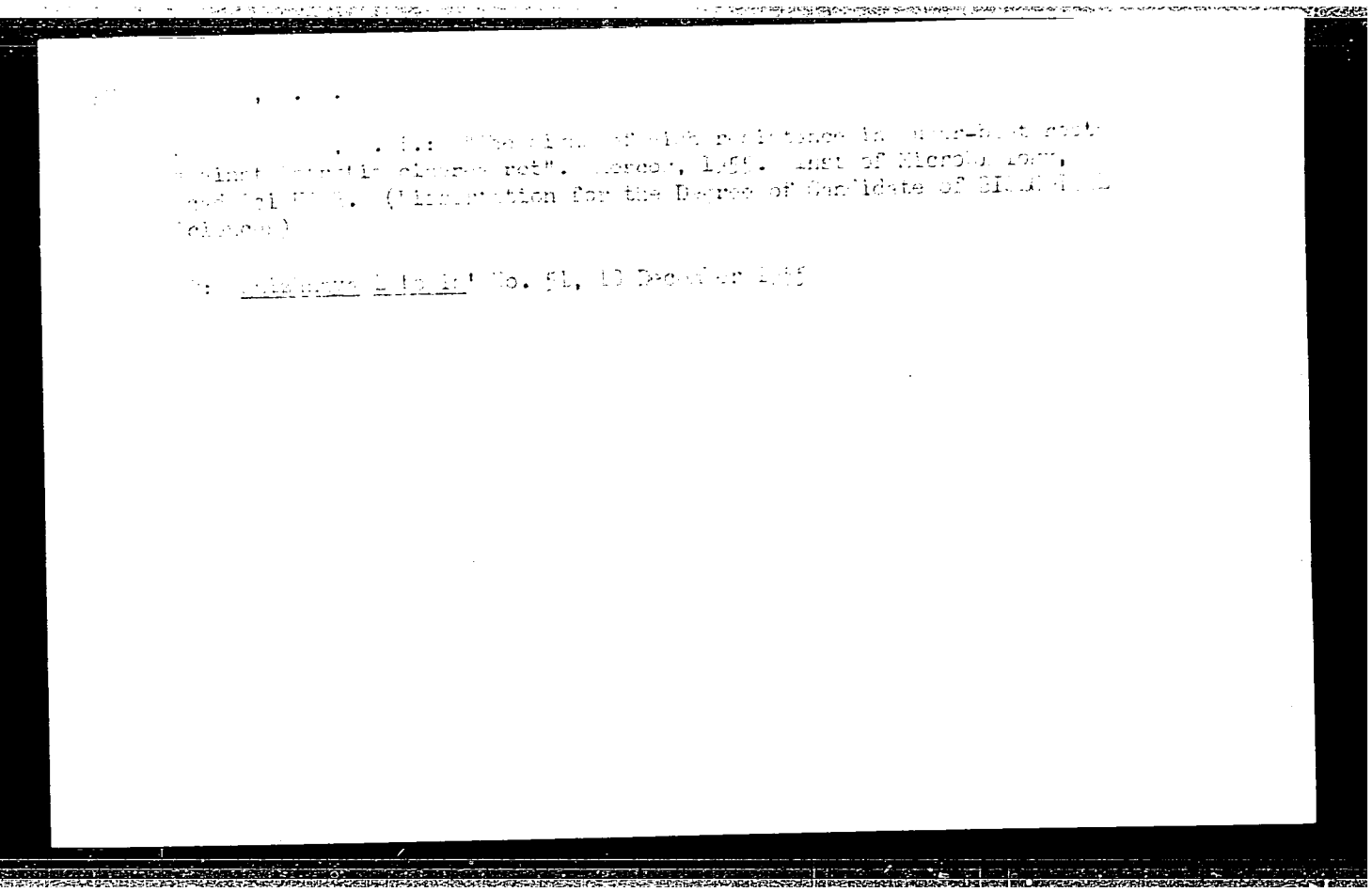
Vitamins B_1, B_2, and PP in grain and products of its treatment. K. L. Povolotskaya, A. A. Kondrasheva, O. I. Pushkinskaya, and E. P. Skorobogatova (A. N. Bakh Inst. Biochem., Acad. Sci. U.S.S.R., Moscow). *Biokhim. Zerna, Akad. Nauk S.S.S.R., Sbornik* 2, 179–92(1954).— Vitamin detns. were made on specimens of grain from wheat, rye, barley, corn, buckwheat, peas, soybeans, sunflower, lentil, and cotton. The highest content of thiamine is in sunflower seed (24 mg./kg.), of riboflavine in soybean (2.16), and nicotinic acid in sunflower (58.6), and wheat (51–60), as well as barley (87). The loss of the B vitamins in treatment of the grain varies with the techniques employed; the removal of the seed covers during milling affects the vitamin content of the flour but little. G. M. K

Jr. Sci. Assoc, Order Labor Red Banner , VAN, No. 10, 1953

PUSHKINSKAYA, O. I.

Determining organisms capable of decomposing cellulose in soil. O. I. Pushkinskaya (*Microbiologiya*, 1954, 23, 34—36).—A soil suspension is poured on to solidified nutrient agar (without cellulose) and a disc of filter paper is pressed on to the surface of the agar. Microbial colonies subsequently developing on the filter paper are readily counted. SOILS & FERT. (A. G. P.)

Inst. Microbiology, Acad Sci USSR
Moscow



PUSHKINSKAYA, O.I.; KUTSEVA, L.S.

Microbiological method for the determination of nicotinic acid(vitamin PP). Vit. res. i ikh isp. no.3:133-144 '55. (MLRA 9:4)

(NICOTINIC ACID) (LACTOBACILLUS ARABINOSUS)

PUSHKINSKAYA, O.I.; KUTSEVA, L.S.

Microbiological method for the determination of folic acid. Vit. res. i ikh isp. no.3:166-174 '55. (MLRA 9:4)

(STREPTOCOCCUS FAECALIS) (FOLIC ACID)

MISHUSTIN, Ye.N.; DRAGUNOV, S.S.; PUSHKINSKAYA, O.I.

Role of micro-organisms in the synthesis of soil humus. Izv. AN SSSR. Ser.biol. no.6:83-94 N-D '56. (MLRA 10:1)

1. Institut mikrobiologii Akademii nauk SSSR.
(PENICILLIUM) (HUMUS)

MISHUSTIN, Ye.N.; PUSHKINSKAYA, O.I.

Measures promoting growth and mycorhiza formation in pine and oak under conditions prevailing in the forest steppe zone of the U.S.S.R. Izv. AN SSSR. Ser. biol. 26 no.5:764-776 S-O '61. (MIRA 14:9)

1. Institute of Microbiology, Academy of Sciences of the U.S.S.R, Moscow.

(MYCORHIZA) (PINE) (OAK)

MISHUSTIN, Ye.N.; PUSHKINSKAYA, O.I.

Ecological and geographical factors governing the distribution of microscopic soil fungi. Izv. AN SSSR. Ser. biol. no.5:641 S-O '60. (MIRA 13:9)

1. Institute of Microbiology, Academy of Sciences of the USSR, Moscow.
(SOIL MICRO-ORGANISMS) (FUNGI)

PUSHKINSKAYA, O. P.

RUBIN, B. A., and PUSHKINSKAYA, O. P. "Microbe Complex Responsibel for Rot of Sugar Beets Stored Under Conditions of Kirghiz," Comptes Rendus (Doklady) de l'Academie des Sciences de l'URSS, vol. 40, 1943, pp. 365-368. 511 P444

SO: SIRA SI 90-53, 15 Dec. 1953

USSR/Cultivated Plants - Subtropical and Tropical. M-6

Abs Jour : Ref Zhur - Biol., No 3, 1958, 11074

Author : Pushkarskiy, I.I.
Inst : -
Title : Grafting the Pistachio.

Orig Pub : S. kh. Tadzhikistana, 1957, No 3, 46-47

Abstract : For the last three years experiments have been conducted on the Stalinabad Subtropical Variety Test Plot on the investigation of the best times and methods of grafting the pistachio. Good results were given by a T-shaped graft with a sprouting eye sometime between 5 and 20 July; 75-80% of the eyes took hold; the eyes succeed in lignifying and stand up well to winter conditions. A description is given of the technique of grafting.

Card 1/1

SHAKHOVSKOY, G.P.; LAVROV, I.A.; PUSHKINSKIY, M.D.; GONIKBERG, M.G.

Equipment for determining the compressibility of liquids. Prib.i tekh.eksp. 7 no.1:181-183 Ja-F '62. (MIRA 15:3)

1. Institut organicheskoy khimii AN SSSR.
(Compressibility--Measurement)

PUSHKINSKIY, V., inzh.; KHAZAN, I.

Area conference of road-design organizations. Avt.dor. 25 no.7:31-32 Jl '62. (MIRA 15:8)
(Roads--Design)

SHUVALOV, G.N.; PUSHLENKOV, M.F.

Method of calculating the distribution of substances in a countercurrent extraction. Radiokhimiia 3 no.6:667-675 '61. (MIRA 14:12)

(Extraction(Chemistry))

PUSHLENKOV, M.F.; KOMAROV, Ye.V.; SHUVALOV, O.N.

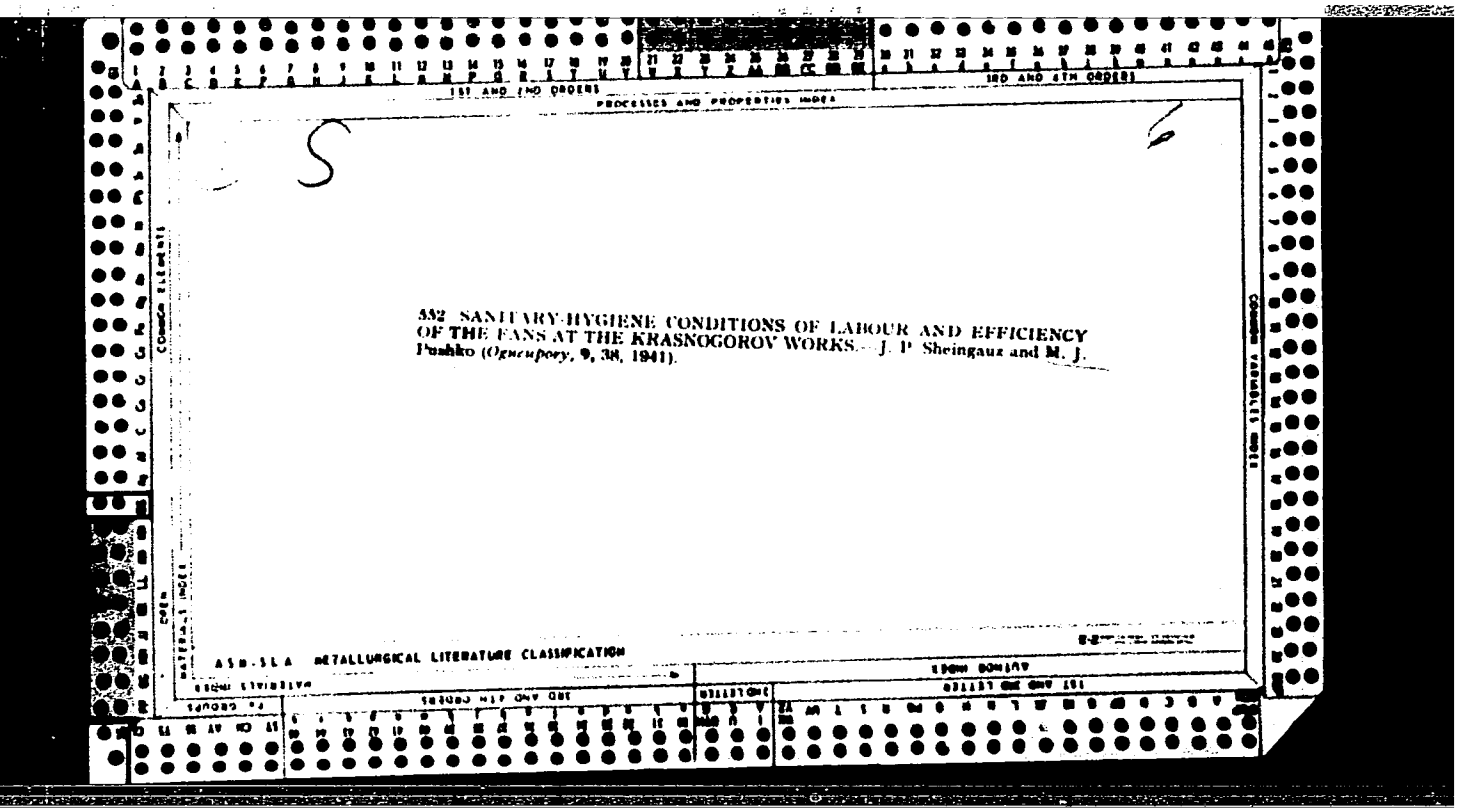
Nature of the diluents as a factor in the extraction of uranyl nitrate with tri-n-butyl phosphate. Radiokhimiia 2 no.5:537-540 '60. (MIRA 13:10)

(Uranyl nitrate) (Butyl phosphate)

SHEVCHUK, I.P., kand.ekon.nauk, dots.; MAKARENKO, P.P., kand. ekon. nauk; STAROVEROVA, V.V., kand.ekon. nauk; KUFUDAKI, V.I., assistent; LEMESHENKO, D.D., assistent; PUSHKO, D.S., kand.ekon. nauk; PILENKO, I.F., kand. ekon. nauk; PEREL'BERG, I.L., starshiy prepodavatel'; BOL'FOY, G.T.; KACHANOVA, N., red.; GORYACHENKO, F., tekhn. red.

[Business accounting within individual production units in operation; practice in introducing business accounting in individual production units of the V.I.Lenin Collective Farm, Bendery District] Vnutrikhoziaistvennyi raschet v deistvii; opyt vnedreniia vnutrikhoziaistvennogo rascheta v kolkhoze im. V.I.Lenina Benderskogo raiona. Kishinev, Izd-vo sel'khoz.lit-ry MSKh MSSR, 1962. 211 p. (MIRA 15:6)

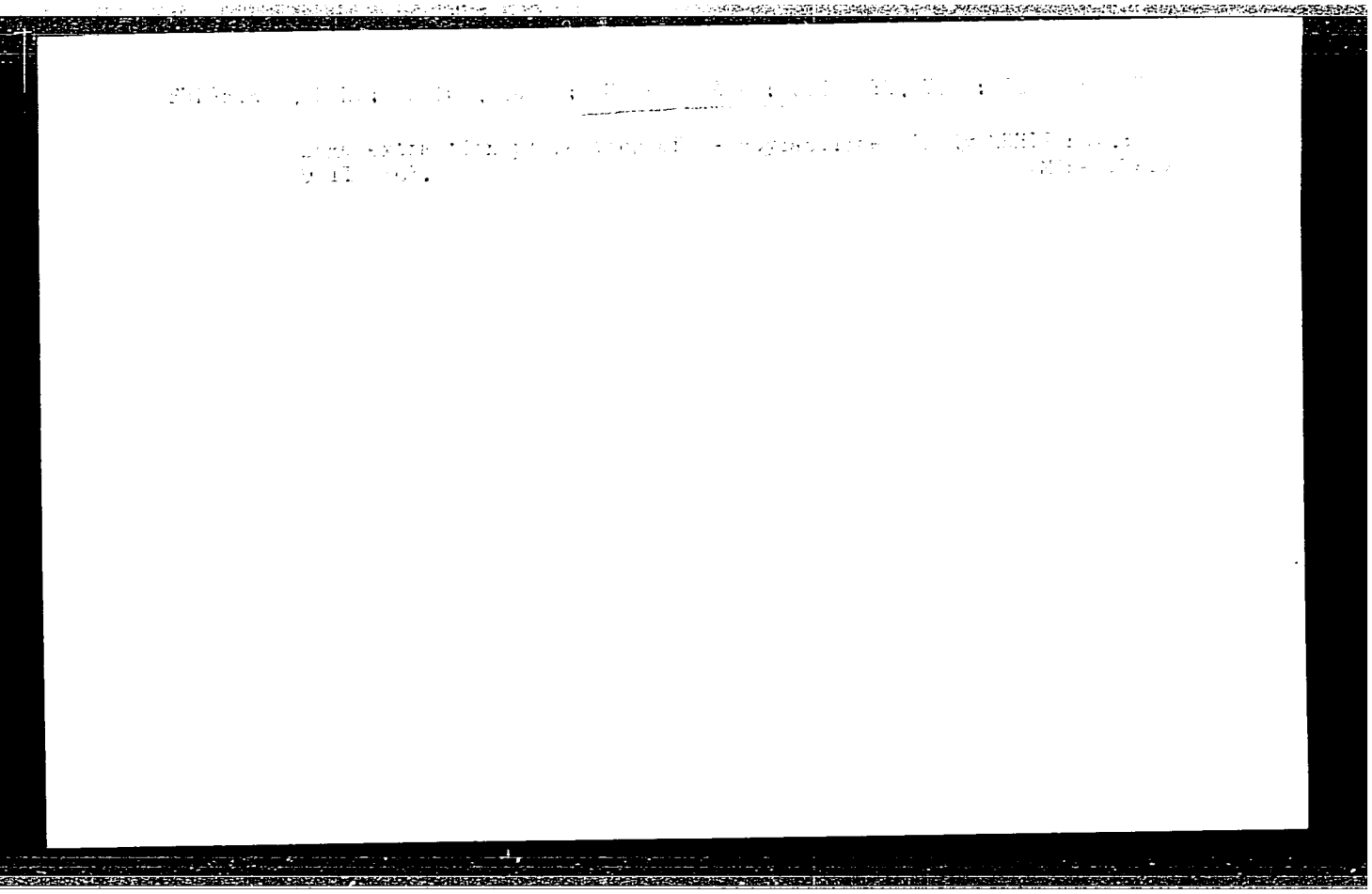
1. Zaveduyushchiy kafedroy ekonomiki i organizatsii sotsialisticheskikh sel'skokhozyaystvennykh predpriyatiy Kishinevskogo sel'skokhozyaystvennogo instituta (for Shevchuk). 2. Predsedatel' kolkhoza im. V.I.Lenina Benderskogo rayona (for Bol'foy).
(Bendery District--Collective farms--Finance)



552 SANITARY-HYGIENE CONDITIONS OF LABOUR AND EFFICIENCY OF THE FANS AT THE KRASNOGOROV WORKS.—J. P. Sheingauz and M. J. Pushko (*Ogneupory*, 9, 38, 1941).

KUBAY, V.V., master; PUSHKO, V.M., obshchestvennyy inspektor

Improving the working conditions in workshops. Put' i put. khoz. 7 no.11:29 '63. (MIRA 16:12)



[redacted], A.A.

Collective farms and state farms should be provided with outstanding telephone service. Vest. sviazi 15 no.5:26-27 My '65. (MIRA 18:5)

1. Nachal'nik Omskogo oblastnogo upravleniya svyazi.

[redacted]

(MIRA 17:10)

[redacted], V.S.; [redacted], Yu.I.; [redacted], A.A.

Extraction of tetravalent cerium by tributyl phosphate.
Trudy MKHTI no.43:16-20 '63.
(MIRA 17:10)

SUDARIKOV, B.N.; FROLOV, Yu.G.; IL'ICHEV, V.A.; PUSHKOV, A.A.; ZAKHAROV-NARTSISSOV, G.I.; OCHKIN, A.V.

Physicochemical properties of some n-aliphatic amines. Trudy MKHTI no.43:21-28 '63. (MIRA 17:10)

[redacted], A.A.; [redacted], V.V.

[redacted] of zirconium and hafnium by means of extraction in a pulsed packed tower. Trudy MKHTI no.40:142-144 '63.
(MIRA 18:12)

ACCESSION NR: AR4015645 S/0081/63/000/022/0384/0384

SOURCE: RZh. Khimiya, Abs. 22L93

AUTHOR: Yagodin, G. A.; Pushkov, A. A.; Tarasov, V. V.

TITLE: Separation of zirconium and hafnium by extraction in a packed pulsating column

CITED SOURCE: Tr. Mos. khim.-tekhnol. in-ta im. D. I. Mendeleyeva, vy*p. 40, 1963, 142-144

TOPIC TAGS: zirconium, hafnium, chromatography, column chromatography, zirconium purification, pulsating column

TRANSLATION: A good degree of purification of Zr from Hf can be obtained by extraction with a 10% solution of diisoamylmethylphosphinate in kerosene on a packed pulsating column. N. Shiryayeva

DATE ACQ: 07Jan64 SUB CODE: CH ENCL: 00

Card 1/1

MEZHOV, E.A.; PUSHKOV, A.A.; SHMIDT, V.S.

Extraction of nitric acid with dioctylamine. Zhur.neorg.khim. 7 no.4:932-935 Ap '62. (MIRA 15:4)
(Nitric acid) (Octylamine)

ZVYAGINTSEV, O.Ye., FROLOV, Yu.G., PUSHKOV, A.A., DUSHEK, B.

Extraction of inorganic acids by aniline derivatives. Zhur. neorg. khim. 10 no.2:512-517 F '65. (MIRA 18:11)

1. Submitted Sept. 16, 1963.

L 21639-66 EWT(1) GW

ACC NR: AP6006676 SOURCE CODE: UR/0203/66/006/001/0172/0175

32
B

AUTHOR: Pushkov, A. N.

ORG: Institute of Terrestrial Magnetism, the Ionosphere, and Propagation of Radio Waves, AN SSSR (Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR)

TITLE: Anomalies in the physical properties of ferromagnetic substances as they change through the Curie point, and the possible connections between these anomalies and geophysical phenomena

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 1, 1966, 172-175

TOPIC TAGS: magnetic anomaly, earth crust

ABSTRACT: In order to evaluate the role of the earth's crust in the development of large regional and worldwide magnetic anomalies, the author considers it necessary to determine the thickness of the "active" magnetic layer and its magnetic properties. He assumes layers of sediments, granite, and basalt resting on a peridotitic layer, and he ascribes average permeability values to each. He also considers that the lower boundary of the "active" layer must reach temperatures of 700C (the Curie

Card 1/2 UDC: 550.389

point). The depth to this isotherm is variously computed to be somewhere between 35 and 100 km. It is suggested that the term Curie layer be used rather than Curie boundary, since the changes involved may occupy a rather thick zone. Apart from the sharp change in permeability, changes also occur in the elastic modulus, electrical resistance, heat capacity, and thermal expansion. This has an effect on seismic wave velocities and may modify opinions concerning granitic and basaltic layers. Magnetic anomalies do not form a continuous spectrum of sizes. Most (perhaps 90%) have an extent no greater than 108 km. Some have dimensions up to 470 km, and some are larger than 4700 km, but none lie in the range 470--4300 km. This is considered proof that no magnetic sources are found in the mantle. The author believes a study of temperature dependence of various physical properties may help solve such problems as: Is there a connection between anomalies in thermal expansion and diminished elasticity, on the one hand, and the concentration of earthquake foci at 40--70 km? Is there any connection between shifting of the Curie layer and secular variations in the earth's magnetic field? The lack of information of rock properties at temperatures up to 700C makes these questions appear premature. Orig. art. has: 3 figures.

SUB CODE: 08, 20/ SUBM DATE: 26Jan65/ ORIG REF: 007/ OTH REF: 004

PUSHKOV, I.; ALEKSANDROV, N.

Hidden potentialities for the growth of output at apatite mines.
Sots.trud. no.5:60-62 My '56. (MLRA 9:8)
(Apatite) (Mining engineering)

PUSHKOV, I.V.

Soil moisture measurement by the use of ultrasound. Sbor. rab. po gidrol. no.1:123-127 '59. (MIRA 15:2)

1. Gosudarstvennyy gidrologicheskiy institut.
(Soil moisture)
(Ultrasonic waves)

ALEKSANDROV, N., LATOV, B., POGOSTIN, S., PUSHKOV, I.

Regulation of work norms and wages of workers in the chemical industry. Sots. trud no. 7:33-39 Jl '58. (MIRA 11:3)
(Chemical industries--Production standards)

PUSHKOV, N. N.

Pushkov, N. N. "A New Type of Magnetometric Balance." In the Book: Informatsionnyi Sbornik po Voprosam Magnetizma i Elektrichestvu. Leningrad, 1936, pp. 29-2 .

Pushkov, N. V. "A New Type of Z-Variometer." In the book: Informatsionnyy Sbornik po Obmenu Opytom v Elektrichestvu, Leningrad, 1956, p. 26.

Pushkov, N. V. "On Magnetic Investigations in the Arctic." Sovetskaia Arktika, Moscow, No. 14, 1936, pp. 1 1-142.

[illegible], N. V., BRUNKOVSKAYA, N. S., and [illegible], N. V.

Comparison of the Magnetic Activity and the Activity of Aurorae Borealis Based on Observations at Tikhaya Bay in 1932-1933.
Meteorologiya i gidrologiya, 1937, no. 6, p 75-83.

PUSHKOV, N. V.

USSR/Ionospheric Measurements
Magnetism, Terrestrial

Mar 46

"Work of the Ionosphere Bureau of the Institute of Terrestrial Magnetism," I.V. Leshchinskiy, N. V. Pushkov, 2 pp

"Izv Ak Nauk Ser Fiz" Vol X, No 3

Brief discussion of its program and future plans.

PA 11T35

KALININ, Yu.D., redaktor; MALININA, N.Ye., redaktor; ORLOV, V.P.; PENKEVICH, M.S.; PUSHKOV, N.V.; KONONOVA, L.B., tekhnicheskiy redaktor.

[Magnetic field of the U.S.S.R.; compound systematic catalog of magnetic determinations of the General Magnetic Survey of the U.S.S.R.; 1931-1942] Magnitnoe pole SSSR. Svodnyi sistematicheskii katalog magnitnykh opredelenii general'noi magnitnoi s"emki Soiuza SSR. 1931-1942 gg. Leningrad, Gidrometeoizdat. Vol.2, Pt.1. 1947. 328 p. [Photostat] (MLRA 8:2)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye gidrometeorologicheskoy sluzhby.
(Magnetism, Terrestrial)

PHASE I BOOK EXPLOITATION 338

Vtoroy sovetskiy iskusstvennyy sputnik Zemli; materialy, opublikovannyye v gazete "Pravda" (The Second Soviet Artificial Earth Satellite; Material Published in "Pravda") Moscow, Izd-vo "Pravda", 1957. 47 p. 100,000 copies printed.

PURPOSE: The booklet was written to give the public information on the second artificial earth satellite.

COVERAGE: The book consists of a number of articles on the second sputnik originally published in the Moscow newspaper "Pravda". Basic information on orbit, structure, equipment, performance, and utilization of the sputniks is given. All these data have been repeatedly published elsewhere; therefore, only a few figures are arbitrarily singled out here. The total weight of the scientific apparatus, test animal, and power supply sources of the second sputnik was 508.3 kg. The initial orbital velocity was about 8,000 m per second. The second sputnik circled

Card 1/4

The Second Soviet Artificial Earth Satellite (Cont.)

the earth initially in 103.7 minutes. Its radio transmitters operated on frequencies of 40.002 and 20.005 megacycles, etc. The last article quotes admiring comments of American, British, French, and Chinese scientists, statesmen, and journalists. The book contains 8 figures.

TABLE OF CONTENTS:

PUSHKOV, N.V.

On the report submitted by the Soviet Committee on the International Geophysical Year. Mezhdunar. geofiz. god. no.2:47-50 '57.
(International Geophysical Year, 1957-1958) (MIRA 11:1)

AUTHORS: Pushkov, N. V., Dolginov, S. Sh. 53-4-1/11

TITLE: The Investigation of the Magnetic Field of the Earth by Means of Artificial Satellites and Rockets (Issledovaniye magnitnogo polya zemli na iskusstvennykh sputnikakh i raketakh).

PERIODICAL: Uspekhi Fizicheskikh Nauk, 1957, Vol. 63, Nr 4, pp. 645-656 (USSR).

ABSTRACT: The present paper investigates some physical and technical aspects of such investigations. First, the basic problems of geomagnetic measurements by means of artificial satellites and rockets are discussed. In this way it is possible to discover current systems in the ionosphere, to evaluate their density, and to draw conclusions concerning the existence of electric currents outside the ionosphere. Measurements carried out by means of satellites and rockets can furnish experimental results concerning the damping of magnetic anomalies and other peculiarities of the field in the case of increasing distance from the earth. These data can then be used for the verification of various hypotheses relating to the depth of sources of regional magnetic anomalies, which is of great importance for the study of the interior structure of the earth. The most interesting places for the measurement of the magnetic field by means of rockets are the zones with the most frequent occurrence of polar phenomena in Arctic

Card 1/2

The Investigation of the Magnetic Field of the Earth by Means of Artificial Satellites and Rockets. 53-4-1/11

and Antarctic regions. Magnetic measurements by means of satellites will obviously be less exact than measurements carried out by means of rockets, because the satellites are rather small, and because orientation changes continually. On the other hand, it is possible to extend measurements carried out with Sputniks over a longer period of time. The following is planned. a) Investigation of the spatial distribution of the constant magnetic field round the earth. b) Evaluation of the spatial distribution of the heights of the systems of electric currents inside and outside the atmosphere. c) Investigation of the inhomogeneous structure of the atmosphere. Interpretation of measurements carried out with satellites will be connected with a considerable amount of computation work, but it will yield very important results. The results obtained may also lead to new opinions. The magnetometers to be used on the satellites and in the rockets are then discussed, The best results will be obtained by means of such magnetometers as measure the components of the field or the scalar amount of the vector and its direction. The authors here describe the proton magnetometer (which is based on measuring the frequency of the free precession of the protons), and a self-orientating magnetometer for the total vector.
There are 2o references, 5 of which are Slavic.

AVAILABLE: Library of Congress.
Card 2/2

PUSHKOV, N.V.

3(7) PHASE I BOOK EXPLOITATION SOV/1357

Isayev, Sergey Ivanovich and Nikolay Vasil'yevich Pushkov

Polyarnyye siyaniya (Polar Lights) Moscow, Izd-vo AN SSSR, 1958.
111 p. (Series: Akademiya nauk SSSR. Nauchno-populyarnaya seriya)
25,000 copies printed.

Resp. Ed.: Lebedinskiy, A I., Doctor of Physical and Mathematical Sciences, Professor; Ed.of Publishing House: Sameonenko, L.V.; Tech. Ed.: Polenova, T.P.

PURPOSE: This is a popular science type booklet intended for the general reader.

COVERAGE: Various forms of polar lights, the altitudes at which initial luminescence occurs, their geographical distribution, and dependence on the time of the year and day are discussed. The relation between polar lights and other similar atmospheric phenomena and solar activity is also reviewed. A large part of the book is devoted to the origin of polar lights and to the physical processes occurring in the atmospheric layers where such phenomena take place. There are 50 figures and 14 tables.

Card 1/3

TABLE OF CONTENTS:

AVAILABLE: Library of Congress

Card 3/3

MM/mas
4-1-59

PUSHKOV, N.V.

Regional conference on problems of organizing announcements of special world-wide observation intervals. Mezhdunar.geofiz.god no.4:108-111 '58. (MIRA 11:11)
(Geophysics--Congresses)

AC/30-59-1-3272

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1959, Nr 11, s 91 (USSR)

AUTHORS: Dolginov, Sh.Sh., Zhuzgov, L.N., Pushkov, N.V.

TITLE: The Preliminary Report About Geomagnetic Measurements on the 3rd Soviet Artificial Earth Satellite

PERIODICAL: Sb. Iskusstv. sputniki Zemli, Nr 2, AS USSR, 1958, pp 50 - 53

ABSTRACT: Geomagnetic measurements were carried out on the 3rd artificial earth satellite, which were accomplished with the aid of a magnetometer with magneto-saturated pick-ups. The obtained experimental data will be utilized in the following ways: 1) The comparison of the values of the field measured by the magnetometer and calculated according to the potential theory. 2) The comparison of the isolation of the full strength of the magnetic field and the intensity of the cosmic rays measured on the sputnik. 3) The analysis of the area over the Eastern-Siberian magnetic anomaly, in order to check the hypotheses on the depth of occurrence of its sources. 4) Investigation into the true existence of an atmospheric dynamo.

Card 1/1

G.A. Kokin

66475

~~3(6)~~ 3.9100 SOV/20-129-1-21/64

AUTHORS: Dolginov, S. Sh., Pushkov, N. V.

TITLE: Some Results of Measurement of the Geomagnetic Field of the Earth by Means of a Space Rocket

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 1, pp 77 - 80 (USSR)

ABSTRACT: It was one of the tasks of the rocket, that was fired on January 2, 1959, to yield experimental data on the intensity of the geomagnetic field at a distance of several earth's radii from the earth's center. Such data are of extreme importance for the realization of the present theory of magnetic storms and auroras. According to the present theories, electric currents may occur during magnetic storms, which flow around the earth. The electric currents flow at the distance of several earth's radii - according to one kind of the theory -, but flow at the distance of several dozens of earth's radii, according to the kind of theory. The geomagnetic field was measured on board of the rocket by means of a three-component magnetometer, with primary elements of magnetically saturated type. The construction of the magnetometer is shortly reported. The results of the geo-

Card 1/4

66475

Some Results of Measurement of the Geomagnetic Field of the Earth by Means of a Space Rocket SOV/20-129-1-21/64

magnetic field measurements, recorded by the rocket are illustrated by a diagram. The second diagram illustrates the variation of the intensity of the geomagnetic field along the line of flight of the rocket, under the assumption, that the field may be produced only by sources present within the earth. 8 coefficients of the development of the geomagnetic field in a series for spherical functions were computed by Yu. D. Kalinin. The measured values differ considerably from the computed ones in the range of $14.7 \cdot 10^3$ to $30 \cdot 10^3$ covered flight-kilometers. This disagreement decreases with increasing distance from the earth. The results of these measurements indicate the following: The geomagnetic field is determined in distances of 2 to 5 earth's radii not only by values, computed from the magnetic earth potential, but depends also on external sources. The anomalous effects may be caused by magnetic phenomena, which occu. on the motion of charged particles in the geomagnetic field. Therefore, it is of great interest, to compare qualitatively the geomagnetic curve to curves of cosmic rays distribution (which was recorded by S. I. Vernov, A. Ye. Chudakov (Ref 3), Van Allen (Ref 4) and their cooperators). A

Card 2/4

Some Results of Measurement of the Geomagnetic Field of the Earth by Means of a Space Rocket

simultaneous consideration of the measurement results of the field strength and of the intensity of the cosmic rays shows, that without doubt he effects, observed in the magnetic field, are connected with the corpuscular radiation zone and are the result of the superposition of the magnetic field of the corpuscular zone to the internal geomagnetic field. One of the most likely reasons of the magnetism in the corpuscular zone are those points, which occur in consequence of the drift of particles in the inhomogeneous geomagnetic field. The observed variations of the anomalous part of the magnetic field may be essentially subject to 2 factors: To the variation of the current densities which are connected with the energy density, and to the variation of the position of the rocket, with respect to the maximum of current density. The intensity and the structure of the anomalous part of the magnetic field depend also on solar activity and on the degree of magnetic perturbation. Ye. G. Yeroshenko and Yu. V. Afanas'yev collaborated in the development of the apparatus and A. D. Shevnin and L. O. Tyurmina helped in the analysis of experimental data.

66475

Some Results of Measurement of the Geomagnetic Field of the Earth by Means of a Space Rocket SOV/20-129-1-21/64

There are 2 figures and 5 references, 2 of which are Soviet.

PRESENTED: August 13, 1959, by A. A. Blagonravov, Academician

SUBMITTED: August 4, 1959

4

Card 4/4

DOLGINOV, Sh.Sh.; YEROSHENKO, Ye.G.; PUSHKOV, N.V.; TYURMINA, L.O.

"Measuring of the Magnetic Fields of the Earth and Moon by Means of Sputnik III and Space Rockets I and II."

report presented at the First Intl Space Science Symposium, Nice, France, Jan 1960. National Academy of Sciences of the USSR, Moscow.

"Research of the Magnetic Field of the Earth and the Moon."

report submitted at the 11th International Astronautical Federation Congress in Stockholm, 15-20 August 1960.

PUSHKOV, N. V., TYURMINA, L. O., DOLGINOV, S. Sh., YEROSHENKO, Ye. G., ZHUZHGOV, L. N.

"Studies of the Magnetic Field of the Earth and the Moon."

report presented at the XI International Astronautical Congress, Stockholm, Sweden, 15-20 August 1960.

N.V

PHASE I BOOK EXPLOITATION SOV/4413

International Cosmic Ray Conference. Moscow, 1959.

Proceedings. v. III. Moscow, 1960. 253 p. Errata slip inserted. No. of copies printed not given.

Sponsoring Agency: International Union of Pure and Applied Physics. Cosmic Ray Commission.

Ed.: S. I. Syrovatskiy, Editorial Board: G. B. Zhdanov (Ed.-in-Chief), I. P. Ivanenko (Assistant Ed.-in-Chief), N. M. Gerasimova, A. I. Nikishov, V. I. Zatsepin, B. A. Khrenov, L. I. Dorman, V. F. Tulinov, S. I. Syrovatskiy, V. M. Fedorov, Yu. N. Vavilov, and A. T. Abrosimov.

PURPOSE: This book is intended for physicists, astronomers and other scientists concerned with the earth's radiation belts and cosmic ray research.

COVERAGE: This is Volume 3 of a 4-volume work containing the proceedings of the Moscow Cosmic Ray Conference held July 6-11, 1959. This volume contains 40 reports on the earth's radiation belts and primary cosmic radiation. The

Card 1/8

varied with increase in rocket distance from the Earth is compared with the corpuscular radiation intensity values obtained on the cosmic rocket and Pioneer III. The comparison shows that the observed changes in the Earth's magnetic field are related to the outer corpuscular region, and that they might be due to the superposition of the magnetic field of the corpuscular zone on the magnetic field of the Earth.

7. Vernov, S.N., A.E. Chudakov, A.I. Lebedinsky (Lebedinskiy), and I. P. Ivanenko. Composition of the Earth's Corpuscular Radiation and Possible Mechanisms of Its Origination 46-49

This paper presents data on the composition of the Earth's corpuscular radiation obtained by means of the Soviet sputniks and the cosmic rocket. The overwhelming majority of particles in the external zone, limited by magnetic lines of force crossing the Earth's surface at geomagnetic latitudes of 55° and 65°, are electrons of 20-100 Kev. Protons of approximately 100 Mev were discovered in the internal zone, limited by

DOLGINOV, S.Sh.; YEROSHENKO, Ye.G.; ZHUZGOV, L.N.; PUSHKOV, N.V.; TYURMINA, L.O.

Magnetic measurements with the second cosmic rocket. Isk. sput.Zem. no.5:16-23 '60. (MIRA 13:5)
(Lunar probes) (Magnetic measurements)

PUSHKOV, N., laureat Leninskoy premii

Significant achievment in radio electronics. Radio no.6:2 Je '60.
(MIRA 13:7)

1. Direktor Instituta zemnogo magnetizma ionosfery i rasprostraneniya radiovoln AN SSSR.
(Radio) (Artificial satellites) (Air)

a. [illegible] – [illegible]

b. [illegible] Carried Out from [illegible] of the [illegible] – [illegible], [illegible], [illegible], [illegible], L. O., I. V. [illegible]

c. [illegible] to Space Flight Conditions – [illegible]

d. [illegible] of the Variable Mass With the Constant [illegible] [illegible] Field – G. L. GRODZOVSKIY, Y. N. [illegible], V. [illegible]

e. [illegible] – V. I. [illegible]

f. [illegible] Cooled by [illegible] – G. L. [illegible]

g. [illegible] by Means of [illegible] – [illegible]

h. [illegible] Investigation – [illegible]

i. [illegible] on Spaceships-Satellites. – S. N. [illegible], [illegible], [illegible], [illegible] – [illegible]

[illegible] to be presented at the XIIth International Astronautical Congress, Washington D. C. 1-7 October 1961

(19)

29718 S/169/61/000/008/034/053
A006/A101

3,2500 (1080)

AUTHORS: Dolginov, Sh. Sh., Yeroshenko, Ye. G., Zhuzgov, L. N., Pushkov, N. V.

TITLE: Investigation of the magnetic lunar field

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 8, 1961, 12, abstract 8G80 ("Geomagnetizm i aeronomiya", 1961, v. 1, no. 1, 21-29)

TEXT: Information is given on experimental problems and data about the lunar field, obtained during the flight of the second Soviet space rocket. An analysis was made of the sensitivity threshold of the measuring instruments from data of measurements in the weak terrestrial magnetic field at 45-60 thousand km distance from the Earth's center. The noise level in the lunar orbit space was analyzed, and measurements were made directly near the Moon down to 55 km distance from its surface. As a result no indications of a noticeable lunar magnetic field were detected. It was estimated that the dipole magnetic moment of the Moon can be only less than 1/10,000 of the magnetic moment of the Earth.

The authors' summary

[Abstracter's note: Complete translation]

Card 1/1

PUSHKOV, N. V., TYURMINA, L. O., FRYAZINOV, I. V., ZHUZGOV, L. N. and DOLGINOV, Sh. Sh.

"Some of the Constant Geomagnetic Field Measurements Carried out from Sputnik III over the Territory of the USSR"

Soviet Papers Presented at Plenary Meetings of Committee on Space Research (COSPAR) and Third International Space Symposium, Washington, D. C., 23 Apr - 9 May 62.

PUSHKOV, N. V., DOLGINOV, Sh. Sh.

"On Some of the Earth's Magnetic Field Investigations in Outer Space"

Soviet Papers Presented at Plenary Meetings of Committee on Space Research (COSPAR) and Third International Space Symposium, Washington, D. C. 23 Apr - 9 May 62.

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E032/E114

AUTHOR: Pushkov, N.V.

TITLE: Magnetism in space

PERIODICAL: Referativnyy zhurnal, Geofizika, no.8, 1962, 14, abstract 8 G 103. (M., Znaniye, 1961, 48 pages, ill., 9 k.)

TEXT: A general account is given of the constant geomagnetic field and of the methods available for its detection. The various forms of magnetic variations are briefly mentioned. A description is given of the apparatus used on the third Soviet artificial earth satellite to measure the magnetic field (a special type of induction magnetometer with magnetically saturated probes) and of the proton magnetometer mounted on "Vanguard III". The general features of the results obtained with these two satellites are described. Measurements obtained with the third satellite and "Vanguard III", and the results of the extrapolation of the surface field with the aid of spherical analysis, agree with each other to within 1%. Measurements over world magnetic anomalies

Card 1/6

Magnetism in space

(Siberian and South African) showed that the fields of these anomalies decrease slowly with height, and hence it follows that the sources of these anomalies are located at the same depths as the sources of the general geomagnetic field. The possible use of satellites in world mapping of the magnetic field are noted, and "optical pumping" magnetometers which may be successfully used for these purposes are described. "Explorer X" carried a rubidium magnetometer based on the "optical pumping" effect. Since the majority of magnetometers designed for satellites are only capable of measuring the total geomagnetic field vector, it is noted that there exists a new mathematical method which may be used to analyse the field using experimental data on the total field strength only. A general account is given of the structure of the ionosphere and the electric currents within it. The first successful rocket measurements of the magnetic field were carried out in the equatorial region and showed discontinuous changes in the field at altitudes corresponding to the E-region. This confirmed the existence of electric currents at these heights. Observations from "Vanguard III" and their comparison with surface

data show that the electric currents which were responsible for disturbances which occurred during the time of the experiments were located beyond the limits of the satellite's orbit. The main properties of magnetic storms are described and an account is given of the leading ideas of the corpuscular theory of Chapman and Ferraro and the hydromagnetic theory of Dessler and Parker. Recently, Chapman and Akasof reviewed and developed the Chapman-Ferraro theory in the light of recent rocket and satellite studies of the magnetic field and corpuscular radiation. Birman has put forward the solar wind hypothesis. An account is given of the radiation belts deduced from the data of Soviet and American satellite measurements. Measurements of the magnetic field in the outer radiation belt and in interplanetary space were carried out from the first and second Soviet space rockets, the "Pioneer" rocket, from "Explorer VI", and from other rockets and satellites. The apparatus used in these experiments is described, its sensitivity is quoted and a detailed analysis of the results obtained is reproduced. Observations from the "Pioneer I" rocket on October 11, 1958 showed the presence of a field anomaly at a

Magnetism in space

distance of 34000 - 44000 km from the earth's surface. On January 12, 1959 the magnetic field in the region of the outer radiation belt was measured from the first Soviet space rocket. The maximum departures of the magnetic field from the uniform-magnetisation field were noted at distances of 20000 to 33000 km. On September 2, 1959 the second space rocket recorded an anomaly at a distance of 18000-20000 km. "Explorer VI" did not detect any particular anomalies at these distances but did indicate the presence of very variable and large magnetic field fluctuations at distances $\geq$ 36000 km, i.e. in the "third" radiation belt. The suggested presence of a third radiation belt is also confirmed by radiation measurements. According to "Pioneer I" and "Pioneer VI" data, the magnetic field at distances of 60000 to 100000 km exhibits quiet-day fluctuations having amplitudes of 2-3 γ and disturbed-day amplitudes of 40-50 γ. It is suggested that these fluctuations are due to the interaction of the geomagnetic field with the interplanetary medium, and are in fact magnetoaccoustic waves produced under the action of the solar wind.

Card 4/6

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Magnetism in space

According to the "Pioneer V" measurements, the boundary of the geomagnetic field (on the daytime side during moderate magnetic activity) is at a distance of ~14 earth radii. Moreover, the interplanetary space also contains a magnetic field of ~3 γ (quiet sun) and ~5 γ (in the presence of corpuscular streams). Changes in the magnetic field outside the earth's magnetosphere and at the earth's surface are roughly similar. It follows that the Forbush effect may be explained by solar corpuscular streams rather than changes in the geomagnetic field. A general account is given of the magnetism of cosmic bodies. According to current ideas, the earth's magnetism is due to a spontaneously excited dynamo-mechanism in the liquid metal core of the earth. When the core rotates with a velocity which is different from that of the outer shell, electric currents are induced in it by the very low interplanetary field and these enhance the original field. Since the moon has a much smaller volume and mass than the earth, and probably does not have an inner core, it follows from the theoretical considerations that the moon should not possess an appreciable magnetic field. Mars and Venus should have magnetic

Card 5/6

fields, but they should be much weaker than the earth's field. Measurements of the lunar field from the second space rocket did in fact show that the field at a distance of 50-4000 km from the moon did not exceed the experimental errors (50-100 γ).

[Abstractor's note: Complete translation.]

Card 6/6

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S/203/62/002/001/002/019
I023/I223

AUTHORS: Dolginov, Sh.Sh., Yeroshenko, Ye.G., Zhuzgov, L.N., and Pushkov, N.V.

TITLE: Magnetic measurements of an automatic interplanetary station to Venus

PERIODICAL: Geomagnetizm i Aeronomiya, v.2, no.1, 1962, 38-40

TEXT: A three-component magnetometer to measure the magnetic field near Venus and a magnetic variometer to measure the field during the voyage were irstalled on the automatic interplanetary station (AIS) to Venus. The threshold sensitivity of the variometer was 2γ, the range - 0 to 50γ. Data from the variometer were obtained on February 12 and 17, 1961. The magnetograms for February 12 (distance from Earth: 165000-175000km) are given together with data from the Moscow observatory ($\varphi = 55^{o}$). The variations of the two magnetograms were approximately the same. Data of February 17 (distance from Earth: 1.9×10^{6}km, duration of

Card 1/2